

State/Industry Ambient Monitoring Network

Air Quality Report

3rd Quarter 2001

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TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
DISCUSSION OF MONITORING RESULTS	1
Sulfur Dioxide (SO ₂)	2
Sulfur Dioxide (SO ₂) 5-Minute Average	2
Ozone (O ₃)	2
Nitrogen Dioxide (NO ₂)	2
Ammonia (NH ₃)	2
Inhalable Continuous PM _{2.5} Particulates	3
Inhalable FRM PM _{2.5} Particulates	3
Inhalable PM ₁₀ Particulates	3
Inhalable PM ₁₀ Sulfates	3
AMBIENT AIR QUALITY DATA SUMMARIES	5
Sulfur Dioxide	6
Sulfur Dioxide 5-Minute Averages	8
Ozone	9
Nitrogen Dioxide	10
Ammonia	11
Inhalable Continuous PM _{2.5}	11
Inhalable FRM PM _{2.5} Particulates	12
Inhalable PM ₁₀ Particulates	13
EXCEEDANCE LISTINGS	15
By Site Date Hour	16
By Date Hour Site	16

SECTION ONE

DISCUSSION OF MONITORING RESULTS

Sulfur Dioxide (SO₂)

There were no exceedances of the state or federal standards during the quarter. The maximum 1-hour concentration was 115 ppb on September 27 at Mandan NW - SPM; the maximum 3-hour concentration was 90 ppb on September 27 at Mandan NW - SPM; and, the maximum 24-hour concentration was 26 ppb on at Mandan NW - SPM on September 25. All sites achieved at least an 80% data recovery for the period.

Sulfur Dioxide (SO₂) 5-Minute Average

The maximum 5-minute concentration was 203 ppb on September 30 at Mandan - SPM.

Ozone (O₃)

There was no exceedance of the ozone standard during the quarter. The maximum observed 1-hour concentration was 68 ppb on July 18 at Fargo NW. The 4th highest 8-hour concentration was 60 ppb on September 28 at Dunn Center. All sites achieved at least an 80% data recovery for the period operated except Dunn Center.

Dunn Center failed to achieve 80% data recovery due to an analyzer malfunction.

Nitrogen Dioxide (NO₂)

The maximum 1-hour concentration observed was 66 ppb on September 26 at DGC #17. All sites achieved at least an 80% data recovery for the period operated.

Ammonia (NH₃)

The maximum 1-hour average was 87.6 ppb on July 3 at Beulah - North. An 80% data recovery was achieved for the period operated.

The data will be used as part of the ambient data input used by the newer dispersion models.

Inhalable Continuous PM_{2.5} Particulates

The maximum 1-hour concentration was 83.1 µg/m³ on August 28 at Fargo NW; the maximum 24-hour concentration was 18.3 µg/m³ on July 16 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated..

Inhalable FRM PM_{2.5} Particulates

The maximum 24-hour average concentration was 14.5 µg/m³ on September 6 at Grand Forks - North. All sites achieved at least an 80% data recovery for the period.

Inhalable PM₁₀ Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour average concentration was 41.0 µg/m³ on September 28 at Bismarck Residential. An 80% data recovery was achieved for the period operated.

Inhalable PM₁₀ Sulfates (SO₄)

Sulfate analysis was terminated effective July 1 when the Department changed to different samplers and a contract laboratory. Related to this change is the addition of speciation samplers to the network. Since the speciation samplers also provide sulfates, as well as 59 other components. All 60 speciation components are available in the EPA-AIRS AQS database.

SECTION TWO

AMBIENT AIR QUALITY DATA

SUMMARIES

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST MM/DD/HH	2ND MM/DD/HH	1ST MM/DD/HH	2ND MM/DD/HH	1ST MM/DD	2ND MM/DD				
Amerada Hess - Tioga #1	2001	JUL-SEP	2177	27 08/25/09	24 08/14/01	13 08/14/02	11 09/30/11	5 09/30	4 08/14	1.3			10.4
Amerada Hess - Tioga #3	2001	JUL-SEP	2141	45 07/06/08	43 09/29/12	34 07/02/17	34 09/29/14	13 07/02	13 09/29	2.5			21.2
Bear Paw - MGP #3	2001	JUL-SEP	2192	48 08/30/07	11 08/21/08	18 08/30/08	6 08/17/08	3 08/30	2 07/24	1.1			3.9
Bear Paw - MGP #5	2001	JUL-SEP	2186	28 08/18/07	21 08/25/08	12 08/18/08	12 08/25/08	3 07/05	3 09/28	1.4			12.9
Beulah - North	2001	JUL-SEP	2184	89 07/06/07	53 07/06/08	58 07/06/08	35 07/06/11	14 07/06	6 08/12	2.1			22.7
DGC #12	2001	JUL-SEP	2193	52 08/05/10	49 08/05/11	34 08/05/11	23 07/14/17	9 08/05	6 08/07	2.3			32.5
DGC #14	2001	JUL-SEP	2195	48 09/01/09	45 08/10/13	29 09/01/11	25 07/24/11	6 09/01	5 07/30	2.1			23.0
DGC #16	2001	JUL-SEP	2195	96 08/08/07	75 08/07/12	47 08/07/14	40 08/08/08	10 08/07	10 08/18	3.2			36.3
DGC #17	2001	JUL-SEP	2197	84 08/07/12	72 08/07/13	54 08/07/14	48 08/08/11	13 08/07	11 08/08	2.9			34.9
Dunn Center	2001	JUL-SEP	2192	25 09/15/09	20 07/09/08	14 07/24/11	13 09/15/11	5 07/09	3 09/15	1.2			8.8
Fargo NW	2001	JUL-SEP	2194	6 08/28/09	3 07/12/09	3 08/28/11	2 09/27/20	1 07/01	1 09/30	1.0			0.5
Mandan - SPM	2001	JUL-SEP	2194	97 09/30/11	61 08/11/11	41 07/06/11	41 09/30/11	20 08/09	16 07/06	3.1			22.2
Mandan NW - SPM	2001	JUL-SEP	2149	115 09/27/10	91 09/27/09	90 09/27/11	62 08/23/20	26 09/25	21 08/23	4.8			43.1
TRNP - NU	2001	JUL-SEP	2195	7 09/15/16	6 09/03/08	4 09/15/17	3 09/29/08	1 07/01	1 09/30	1.0			1.0

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : SULFUR DIOXIDE (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A 3 - HOUR		24 - HOUR		ARITH MEAN	1HR #>273	24HR #>99	% >MDV
				1ST	2ND	1ST	2ND	1ST	2ND				
				MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD	MM/DD				
TRNP - SU (Painted Canyon)	2001	JUL-SEP	2192	16 07/17/19	11 07/17/20	12 07/17/20	9 08/07/23	3 07/09	3 08/07	1.2			7.6
White Shield	2001	JUL-SEP	2188	40 08/03/13	25 07/01/06	19 08/03/14	13 07/01/08	5 07/12	4 08/03	1.7			22.8

The maximum 1-hour concentration is 115 ppb at Mandan NW - SPM on 09/27/10
The maximum 3-hour concentration is 90 ppb at Mandan NW - SPM on 09/27/11
the maximum 24-hour concentration is 26 ppb at Mandan NW - SPM on 09/25

* The air quality standards are:

STATE Standards -

- 1) 273 ppb maximum 1-hour average concentration.
- 2) 99 ppb maximum 24-hour average concentration.
- 3) 23 ppb maximum annual arithmetic mean concentration.

FEDERAL Standards -

- 1) 500 ppb maximum 3-hour concentration not to be exceeded more than once per year.
- 2) 140 ppb maximum 24-hour concentration not to be exceeded more than once per year.
- 3) 30 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	PERIOD	OBS	5 - M I N U T E M A X I M A						# HOURS >600	% >MDV
				1ST	DATE	2ND	DATE	3RD	DATE		
					MM/DD/HH		MM/DD/HH		MM/DD/HH		
Bear Paw - MGP #3	2001	JUL-SEP	2192	143	08/30/07	27	08/26/07	19	09/20/16	0	10.1
Bear Paw - MGP #5	2001	JUL-SEP	2186	52	08/23/03	50	09/21/08	45	08/25/07	0	25.4
Beulah - North	2001	JUL-SEP	2184	161	07/06/07	139	07/21/08	108	07/14/17	0	32.5
Dunn Center	2001	JUL-SEP	2192	30	09/15/09	28	09/03/08	27	07/24/08	0	13.3
Fargo NW	2001	JUL-SEP	2194	6	08/28/09	3	07/12/09	3	08/28/08	0	0.5
Mandan - SPM	2001	JUL-SEP	2194	203	09/30/11	105	09/29/15	104	07/06/12	0	32.8
Mandan NW - SPM	2001	JUL-SEP	2149	173	09/27/10	153	09/27/09	123	08/28/08	0	58.4
TRNP - NU	2001	JUL-SEP	2195	7	09/15/16	6	09/03/08	4	08/31/00	0	1.0
TRNP - SU (Painted Canyon)	2001	JUL-SEP	2192	16	07/17/19	11	07/17/20	11	08/07/21	0	7.6

The maximum 5-minute concentration is 203 ppb at Mandan - SPM on 09/30/11

* No Standard is currently in effect:

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ozone (PPB)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1 - HOUR		M A X I M A		8 - HOUR		4TH	1HR #>120	8HR #>80
				1ST MM/DD/HH	2ND MM/DD/HH	1ST MM/DD/HH	2ND MM/DD/HH	3RD MM/DD/HH	4TH MM/DD/HH			
Beulah - North	2001	JUL-SEP	2187	63 08/21/15	62 08/21/14	60 09/28/09	56 09/28/12	56 09/28/11	56 09/28/10			
Dunn Center	2001	JUL-SEP	2195	65 09/28/14	65 09/28/15	63 09/28/11	60 09/28/10	60 09/28/12	60 09/28/09			
Fargo NW	2001	JUL-SEP	2193	68 07/18/16	64 07/18/13	60 07/18/10	57 07/18/09	57 07/18/11	57 09/29/11			
TRNP - NU	2001	JUL-SEP	1695 ***	67 09/28/16	66 09/28/14	65 09/28/13	58 09/28/12	58 09/28/11	58 09/28/15			
TRNP - SU (Painted Canyon)	2001	JUL-SEP	2195	63 08/07/14	63 08/07/15	60 09/28/12	59 09/28/11	59 09/28/10	59 09/28/14			

The maximum 1-hour concentration is 68 ppb at Fargo NW on 07/18/16
The 4th highest 8-hour concentration is 60 ppb at Dunn Center on 09/28/09

* The air quality standards for ozone are:
STATE - 120 ppb not to be exceeded more than once per year.

FEDERAL - Fourth highest daily maximum 8-hour averages for a 3-year period not to exceed 80 ppb.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Nitrogen Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A 1 - HOUR		ARITH MEAN	% >MDV
				1ST MM/DD/HH	2ND MM/DD/HH		
Beulah - North	2001	JUL-SEP	2181	25 08/26/01	24 09/30/01	3.0	69.1
DGC #12	2001	JUL-SEP	2184	33 08/26/01	30 07/02/21	3.3	83.3
DGC #17	2001	JUL-SEP	2171	66 09/26/06	42 09/26/05	4.0	86.3
Dunn Center	2001	JUL-SEP	2186	23 07/09/08	14 09/06/21	1.7	35.9
Fargo NW	2001	JUL-SEP	2190	40 07/16/15	37 09/26/18	5.7	81.7
TRNP - NU	2001	JUL-SEP	2191	9 09/06/22	9 09/07/00	1.1	6.4

The maximum 1-hour concentration is 66 ppb at DGC #17 on 09/26/06

* The air quality standards are:
STATE - 53 ppb maximum annual arithmetic mean.
FEDERAL - 53 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ammonia (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A					
				1ST	2ND	3RD	4TH	5TH	6TH
				MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH	MM/DD/HH
Beulah - North	2001	JUL-SEP	2166	87.4 07/03/22	69.6 08/22/03	63.3 07/03/21	61.6 08/05/06	4.5 08/05/05	4.3 09/02/05

* No standard is currently in effect.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable Continuous PM_{2.5} (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	M A X I M A						24 - HOUR		MEAN	1HR #>150	24HR #>65
				1ST	2ND	1ST	2ND	3RD	4TH					
				MM/DD/HH	MM/DD/HH	MM/DD	MM/DD	MM/DD	MM/DD					
Beulah - North	2001	JUL-SEP	2189	44.1 09/02/05	29.8 09/05/20	14.2 08/23	13.6 08/22	13.1 08/21	12.8 07/14			7.4		
Fargo NW	2001	JUL-SEP	2201	83.1 08/28/07	38.0 07/31/00	18.3 07/16	12.7 09/06	12.7 08/05	12.7 08/22			5.4		

The maximum 1-hour concentration is 83.1 µg/m³ at Fargo NW on 08/28/07
The highest 24-hour concentration is 18.3 µg/m³ at Fargo NW on 07/16

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m³.
- 2) Annual: 3-year average not to exceed 15 µg/m³.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable FRM PM_{2.5} Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A 24 - HOUR			ARITH MEAN	#> 65	AM>15	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Beulah - North	2001	JUL-SEP	15	2.8	11.5 08/23	9.7 09/28	9.5 08/11	6.2			100.0
Bismarck Residential	2001	JUL-SEP	28	3.0	14.3 08/23	9.0 09/28	8.5 08/05	6.2			100.0
Fargo NW	2001	JUL-SEP	30	2.7	13.8 07/15	13.5 08/05	12.0 09/19	7.0			100.0
Grand Forks - North	2001	JUL-SEP	30	3.0	14.5 09/06	12.1 09/19	12.0 08/05	7.8			100.0
Sharon	2001	JUL-SEP	14	2.2	11.3 08/05	10.4 08/23	8.5 08/11	6.1			100.0
TRNP - SU (Painted Canyon)	2001	JUL-SEP	15	1.7	10.9 08/23	8.8 09/28	8.1 08/11	5.5			93.3

The maximum 24-hour concentration is 14.5 µg/m³ at Grand Forks - North on 09/06

* The ambient air quality standards are:

FEDERAL Standards -

- 1) 24-hour: 3-year average of 98th percentiles not to exceed 65 µg/m³.
- 2) Annual: 3-year average not to exceed 15 µg/m³.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM₁₀ Particulates (µg/m³)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	M A X I M A 24 - HOUR			ARITH MEAN	#>150	AM>50	% >MDV
					1ST MM/DD	2ND MM/DD	3RD MM/DD				
Bismarck Residential	2001	JUL-SEP	12	10	41.0 09/28	33.0 08/17	33.0 08/23	23.5			100.0
Dragswolf	2001	JUL-SEP	15	6.1	35.4 09/28	19.4 08/23	17.2 07/12	13.4			100.0
White Shield	2001	JUL-SEP	15	10	37.2 09/26	28.5 08/23	24.7 09/04	17.5			100.0

The maximum 24-hour concentration is 41.0 µg/m³ at Bismarck Residential on 09/28

* The STATE and FEDERAL air quality standards are:

- 1) 150 µg/m³ maximum averaged over a 24-hour period with no more than one expected exceedance per year.
- 2) 50 µg/m³ expected annual arithmetic mean.

SECTION THREE

EXCEEDANCE LISTINGS

By Site Date Hour

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ (µg/m³)

The * Identifies the Exceedances

NONE

By Date Hour Site

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and PM_{2.5} and PM₁₀ (µg/m³)

The * Identifies the Exceedances

NONE